

I/WE CLAIM

1. A refrigerator comprising:

a cabinet shell including a first compartment and a second compartment, each of said first and second compartments including a respective opening for receiving items to be refrigerated;

first and second French-style doors pivotally mounted to the cabinet shell about the opening of the first compartment;

first and second gaskets arranged between the first and second doors and the cabinet shell for sealing the opening of the first compartment;

at least one guide element mounted to one of upper and lower portions of the first compartment;

a mullion bar pivotally mounted to the first door, said mullion bar including first and second, interconnected members;

first and second hinge members, each of said first and second hinge members including first and second hinge elements, said first hinge element including a first cam member and a hinge pin defining a hinge axis, said second hinge element including a second cam member and a hinge pin receiver, each of said first and second hinge elements being mounted to a respective one of the first door and the mullion bar, with the hinge pin extending into the hinge pin receiver and the first and second cam members being nested together;

a spring biasing the first and second hinge elements into engagement; and

at least one guide element provided on at least one of upper and lower portions of the mullion bar, said at least one guide element being adapted to engage the at least one guide element during opening and

closing of the first door to cause relative rotating and translating motions between the first and second cam members against a biasing force of the spring and forced rotation of the mullion bar about the hinge axis relative to the first door.

2. A refrigerator comprising:

a cabinet shell including a first compartment and a second compartment, each of said first and second compartments including a respective opening for receiving items to be refrigerated;

first and second French-style doors pivotally mounted to the cabinet shell about the opening of the first compartment;

at least one guide element mounted to one of upper and lower portions of the first compartment;

a mullion bar pivotally mounted to the first door;

first and second hinge members, each of said first and second hinge members including first and second hinge elements, said first hinge element including a first cam member and a hinge pin defining a hinge axis, said second hinge element including a second cam member and a hinge pin receiver, each of said first and second hinge elements being mounted to a respective one of the first door and the mullion bar, with the hinge pin extending into the hinge pin receiver and the first and second cam members being nested together;

a spring biasing the first and second hinge elements into engagement; and

at least one guide element provided on at least one of upper and lower portions of the mullion bar, said at least one guide element being adapted to engage the at least one guide element during opening and closing of the first door to cause relative rotating and translating motions

between the first and second cam members against a biasing force of the spring and forced rotation of the mullion bar about the hinge axis relative to the first door.

3. The refrigerator according to claim 2, wherein the mullion bar includes first and second members connected together.
4. The refrigerator according to claim 3, wherein the guide element constitutes a pin element integrally molded with the mullion bar.
5. The refrigerator according to claim 3, wherein the guide element includes first and second portions, said first portion extending from the first member of the mullion bar and said second portion extending from the second member of the mullion bar.
6. The refrigerator according to claim 2, wherein the first and second cam members of the first and second hinge elements are constituted by three lobed cams establishing first and second positions for the mullion bar, said mullion bar being adapted to rotate from a first position being substantially parallel to one of the first and second doors to a second position being substantially perpendicular to one of the first and second doors.
7. The refrigerator according to claim 6, wherein the mullion bar rotates approximately 110 degrees from the first position to the second position.

8. The refrigerator according to claim 2, further comprising: a mullion bar heating element positioned to heat the mullion bar.
9. The refrigerator according to claim 8, further comprising: a cover including a base member secured to one of the first and second doors and a pivot member extending into the mullion bar, said pivot member including a central pathway for a mullion bar heating element wire.
10. The refrigerator according to claim 9, wherein the base member is provided with at least one bumper adapted to selectively cushion movement of the mullion bar.
11. The refrigerator according to claim 2, wherein the mullion bar includes a cover member, said cover member being formed from a metal material.
12. The refrigerator according to claim 2, further comprising: first and second gaskets arranged between the first and second doors and the cabinet shell for sealing the opening of the first compartment.
13. The refrigerator according to claim 12, wherein each of the first and second gaskets includes a flap, said flaps preventing a flow of air to pass from the refrigerator to the surroundings.
14. The refrigerator according to claim 13, wherein each of the first and second gaskets include two flaps, with the two flaps on the first gasket overlapping the two flaps on the second gasket when the first and second doors are closed.

15. The refrigerator according to claim 12, further comprising: first and second magnets arranged within respective portions of the first and second gaskets.
16. The refrigerator according to claim 2, wherein the refrigerator is constituted by a bottom mount refrigerator.
17. The refrigerator according to claim 2, wherein the at least one guide element includes a guide surface defining a fixed guide path for the at least one guide element as the first door is closed.
18. The refrigerator according to claim 17, wherein the at least one guide element includes a projection spaced from the guide surface, said at least one guide element abutting the projection upon the opening of the first door.
19. A refrigerator comprising:
 - a cabinet shell including a first compartment and a second compartment, each of said first and second compartments including a respective opening for receiving items to be refrigerated;
 - first and second French-style doors pivotally mounted to the cabinet shell about the opening of the first compartment;
 - at least one guide element mounted to one of upper and lower portions of the first compartment;
 - a mullion bar pivotally mounted to the first door, said mullion bar including first and second, interconnected members;
 - first and second hinge members, each of said first and second hinge

members including first and second hinge elements, each of said first and second hinge elements being mounted to a respective one of the first door and the mullion bar, with the first and second hinge elements being nested together; and

at least one guide element provided on at least one of upper and lower portions of the mullion bar, said at least one guide element being adapted to engage the at least one guide element during opening and closing of the first door to cause forced rotation of the mullion bar about the hinge axis relative to the first door.

20. The refrigerator according to claim 19, wherein the first hinge member includes a base portion, a first cam member projecting from the base portion and a hinge pin defining a hinge axis, said second hinge element including a second cam member and a hinge pin receiver, each of said first and second hinge elements being mounted to a respective one of the first door and the mullion bar, with the hinge pin extending into the hinge pin receiver and the first and second cam members being nested together.

21. The refrigerator according to claim 20, wherein said base portion includes a dove tail element, said refrigerator further including a dove tail member mounted to the first door, said dove tail element and said dove tail member being slidably connected to mount the first hinge member to the first door.

22. The refrigerator according to claim 20, wherein each of the first and second cam members include multiple lobes, with said multiple lobes defining at least first and second detent positions for the mullion bar.

23. The refrigerator according to claim 20, further comprising: a spring biasing the second cam member against the first cam member.